

Air pollution and increasing asthma hospitalizations: a looming healthcare crisis?

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Asthma is a major non-communicable disease (NCD) affecting adults and children, among whom it is the most common chronic disease reported all around the globe.¹

Asthma has been a significant cause of hospitalizations and financial burdens for low and lower- middle -income countries like Pakistan. According to the latest WHO data published in 2020, asthma deaths in Pakistan reached a staggering 20,750 or 1.42% of total deaths.²

Many etiologies including social and environmental factors, genetic predispositions, and ambient air pollution, influence asthma morbidity and mortality. In particular, the worsening air quality index in the country needs to be a point of focus as a significant cause of asthma related morbidity.

The rapid decline in air quality levels in Pakistan, particularly in major industrial cities such as Lahore and Karachi, is a cause of grave concern. For example, air quality in Lahore has declined over the last two decades: in 1998, its pollution concentration was 33 $\mu\text{g}/\text{m}^3$. By 2016, it had doubled to 64 $\mu\text{g}/\text{m}^3$ —more than six times the WHO guideline.³

Similarly, Karachi, the largest city in Pakistan, has a PM_{2.5} concentrations, which is 3.4 times the WHO annual air quality guideline value, an alarming scenario for a city where environmental policies and infrastructure is not in place.⁴

A study in Lahore noted the role of ambient air pollution among various population groups of the city. The research showed a positive Pearson correlation between environmental air pollutants and the number of asthma patients visiting the OPD.⁵ However, a similar, comprehensive study has not been conducted in Karachi on the same level.

As in most cases, the first step toward solving a problem is to recognize it. Hence there's a need for more research to

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be conducted to determine the number of hospitalizations of asthmatic patients caused by low air quality as it will give us a better understanding of the true extent of the issue at hand and allow more appropriate prioritization, in the context of public health by the government.

Once this is done, resources can be allocated more efficiently towards areas and populations suffering more acutely to relieve the suffering of the majority. In addition, educational campaigns can be designed considering the population's educational demographics and general knowledge regarding the exact reasons for the worsening air quality in those areas.

To conclude, worsening air quality due to pollution needs to be investigated urgently and thoroughly regarding its effects on asthma hospitalizations to achieve optimal healthcare outcomes for patients in Karachi.

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